SONY

VIDEOCASSETTE RECORDER

VO-5850P
VO-5850S

Operating Instructions page 2

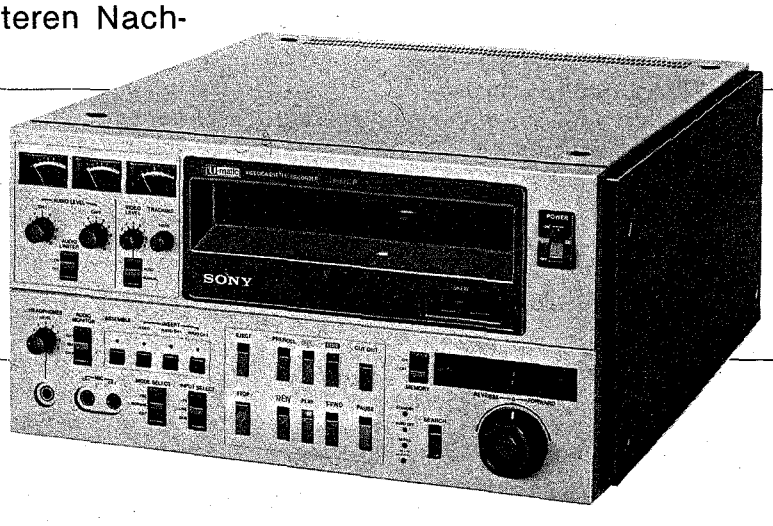
Before operating the unit,
please read this manual thoroughly and
retain it for future reference.

Mode d'emploi page 30

Avant de faire fonctionner cet appareil,
lire attentivement ce mode d'emploi
et le conserver pour toute référence
ultérieure.

Bedienungsanleitung Seite 58

Lesen Sie bitte vor Inbetriebnahme des Gerätes diese Anleitung aufmerksam durch, und bewahren Sie sie zum späteren Nachschlagen gut auf.



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English

This instruction manual covers the VO-5850P and the VO-5850S Videocassette Recorders. Performances and characteristics of these models are identical except where specifically pointed out in the text.

Quick, accurate and very flexible electronic editing can be very easily performed with the Sony VO-5850P/VO-5850S Videocassette Recorder. The compact, lightweight VO-5850P/VO-5850S incorporates the very latest technology and you will find that being able to operate all functions on the front panel is very convenient.
The VO-5850P/VO-5850S is designed to be a key component in a variety of video system.

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WARNING

- To prevent fire or shock hazard, do not expose the unit to rain or moisture.
- To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

WARNING FOR THE CUSTOMERS IN THE UNITED KINGDOM

This apparatus must be earthed to your 3-pin plug in accordance with following instructions.

IMPORTANT
The wires in this mains lead are coloured in accordance with the following code :

Green-and-yellow	:	Earth (safety earth)
Blue	:	Neutral
Brown	:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug, proceed as folows :
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

FEATURES

Sophisticated electronic editing is easy.

ıll essential functions for electronic editing, rotary erase ıead, vertical interval switcher and capstan servo are, of ourse, incorporated in the VO-5850P/VO-5850S, plus a ıumber of additional functions such as framing servo and ø² ɔop servo to make high-quality editing possible. A new type ılayback amplifier, a dropout compensator and a noise liminator insure that you will always have a high-quality ıicture.

ıutomatic editing: When a RM-440 Automatic Editing Control Unit is connected, you have a totally automatic editing system.

Search operation: Governed by the search dial, playback at 1/30 to 5 times normal speed is possible in both forward and reverse directions. When a KCS cassette is used, picture search (at about 10 times normal playback speed) is also possible with the search dial on the RM-440.

Preroll function: The PREROLL button makes it easy to achieve a stable picture at the edit-in point.

Dubbing connectors: Connectors for editing or duplicating video signals are included.

Color framing system: The color framing system makes the color framing adjustment by every 4 fields possible so that the flashing at the edit-in point can be avoided.

The VO-5850P/VO-5850S has a wide variety of functions and almost all of which can be controlled on the front panel.

.ED time counter: The time counter reads the CTL signals recorded on the tape and the LEDs indicate the point on the tape in seconds and minutes.

ſark-in function: Any particular point on the tape can be easily and quickly located using the MARK IN button.

ɨtill picture: When the tape is stopped with the PAUSE button during playback, a still picture can be obtained. The guard band noise is limited to the upper or lower part of the screen so that the still picture is easy to see.

.ong pause mode: When the tape is stopped in the pause mode for a long period of time, the machine automatically enters the long pause mode to avoid possible damage to the tape.

ſoisture detector: When moisture condenses on the video head drum, the moisture detector is activated and the machine stops to avoid possible tape damage. The AUTO OFF indicator lights to indicate moisture condensation.

Remote control and auto search: The machine can be remotely controlled with an optional remote control unit. Any point on the tape can be searched for and played back automatically using an RX-353CE or RX-303CE Auto Search Control Unit.

Connectors for time base corrector: The best possible playback picture can be obtained when a time base corrector (optional) is connected.

Logic control: The logic control system allows you to change modes without pressing the STOP button.

Full automatic rewind: The tape is automatically rewound to the beginning when it runs to the end.

Video recording level adjustment: The video recording level can be adjusted automatically or manually.

Limiter function: The audio recording level is adjusted manually. The limiter circuit minimizes audio distortion at the program peaks.

Two audio tracks: Two audio tracks permits recording and playback of stereo sound or bilingual program material.

Other features

ɨtable playback picture: The servo system using a direct drive capstan motor and drum motor, and the newly developed digital servo IC assure a stable tape transport which reduces tape jitter.

ɪack mounting: The VO-5850P/VO-5850S is designed to be mounted in a 19-inch EIA standard rack.

No power adaptation and low power consumption: Thanks to Sony's newly-developed high efficiency switching regulator, the unit can be operated with a wide range of power voltages and frequencies without power adaptation. Power consumption is low.

PRECAUTIONS

On safety

- Operate the unit only with a power source specified in the "SPECIFICATIONS" on page 27.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

On installation

- Allow adequate air circulation to prevent internal heat buildup. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near a heat source such as a radiator or an air duct, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Never operate the unit in a vertical position. The projections on the connector panel are to protect the connectors and switches on the panel when the unit is stored vertically.
- Keep the unit away from equipment with strong magnets as for example a large loudspeaker.

On operation

- When the unit is not in use, turn the power off.
- Remove and store video cassettes after recording or playback.
- Never operate the unit right after having transported it from a cold location directly to a warm location.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.

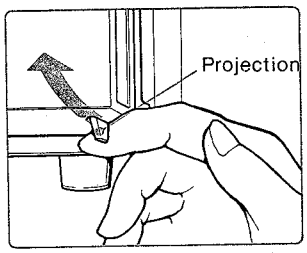
On transportation

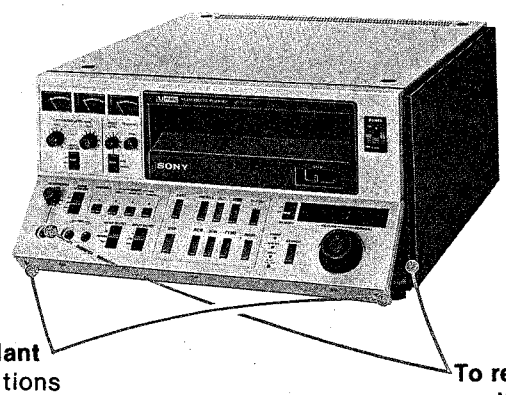
- Remove the video cassette when transporting the unit.
- Save the original carton and associated packing material. They will be useful should you have to transport or ship the unit.

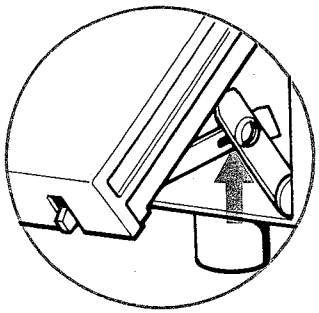
If you have any questions about this unit, contact your Sony dealer.

TO PUT THE OPERATION PANEL ON A SLANT

The lower half of the operation panel can be pulled out as shown below.







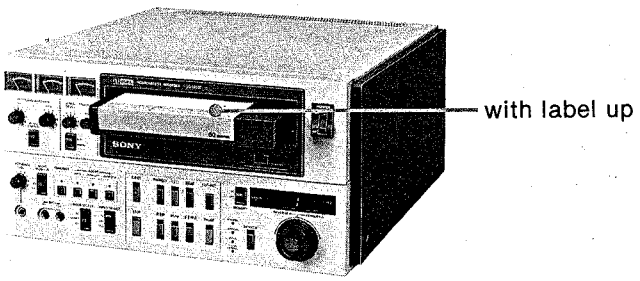
To put the panel on a slant
While pulling the projections on the bottom of the operation panel out, swing the bottom of the panel out and up until the side braces lock.

To return the panel to the original position
Push up on the side braces to unlock them and swing the panel down and back until it clicks into place.

ABOUT VIDEO CASSETTES

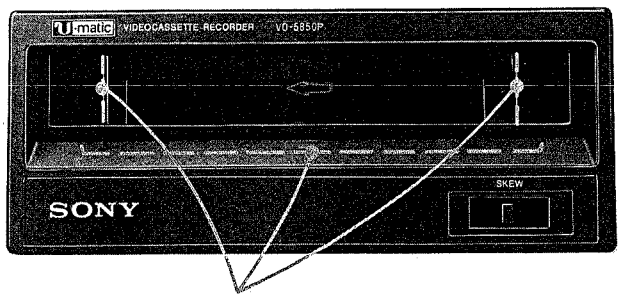
TO INSERT A VIDEO CASSETTE

1. Turn the power on.
2. Insert a video cassette straight into the cassette compartment until it stops. The cassette is automatically loaded.



To insert a KCS cassette

Be sure to insert a KCS cassette into the center of the cassette compartment, aligning the cassette with the guide—the cutout at the cassette entrance and the lines on the cassette compartment lid.



Align these positions

If the STAND BY indicator remains lit and any of function buttons (except for the EJECT button) does not operate the recorder

Eject the cassette and take up the leader tape manually by turning the reel to the direction of the arrow on the bottom until the leader tape is completely taken up.
Insert the cassette again.

Notes on cassette insertion

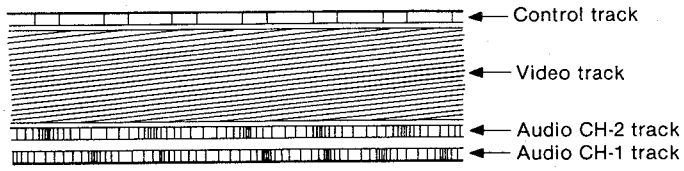
- Before inserting a video cassette, check that the lamp inside the cassette compartment is not lit. If it is lit, a cassette has already been inserted.
- Be sure to insert the cassette straight into the entrance of the cassette compartment, not at an angle.
- Do not insert a cassette with the bottom side up.
- The labels on the cassette should be firmly attached. If they peel off an inserted cassette, you might not be able to remove the cassette.

TO REMOVE A VIDEO CASSETTE

1. Check that the power is on.
2. Press the EJECT button. The cassette will be automatically ejected.

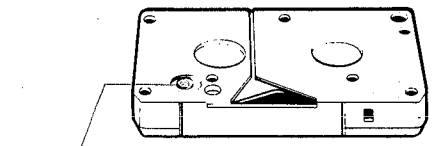
THE RECORDING FORMAT

The video and audio signals are recorded using the full width of the tape as shown below. Because of this, the tape cannot be recorded in the reverse direction.



THE RED BUTTON ON THE BOTTOM

If you want to safeguard the material recorded on a cassette, remove the red button on the bottom so it cannot be recorded even if the REC button is pressed. Accidental erasure is now impossible. If you later decide to record on this cassette, replace the button. If a cassette without a red button is inserted into the videocassette recorder, the E-to-E mode picture (see page 9) on the monitor screen is cut off.

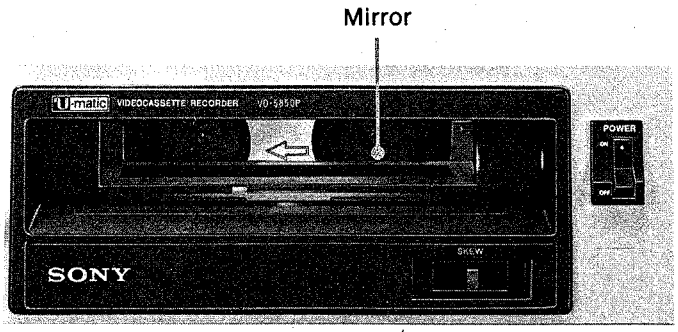


HANDLING AND STORAGE

- Do not store a video cassette in a place subject to direct sunlight, high humidity or excessive dust, or near heaters, air ducts or a magnetic field.
- Store the cassette in the cassette case vertically, first rewinding the tape evenly on the supply reel.
- Avoid subjecting the cassette to mechanical shock.

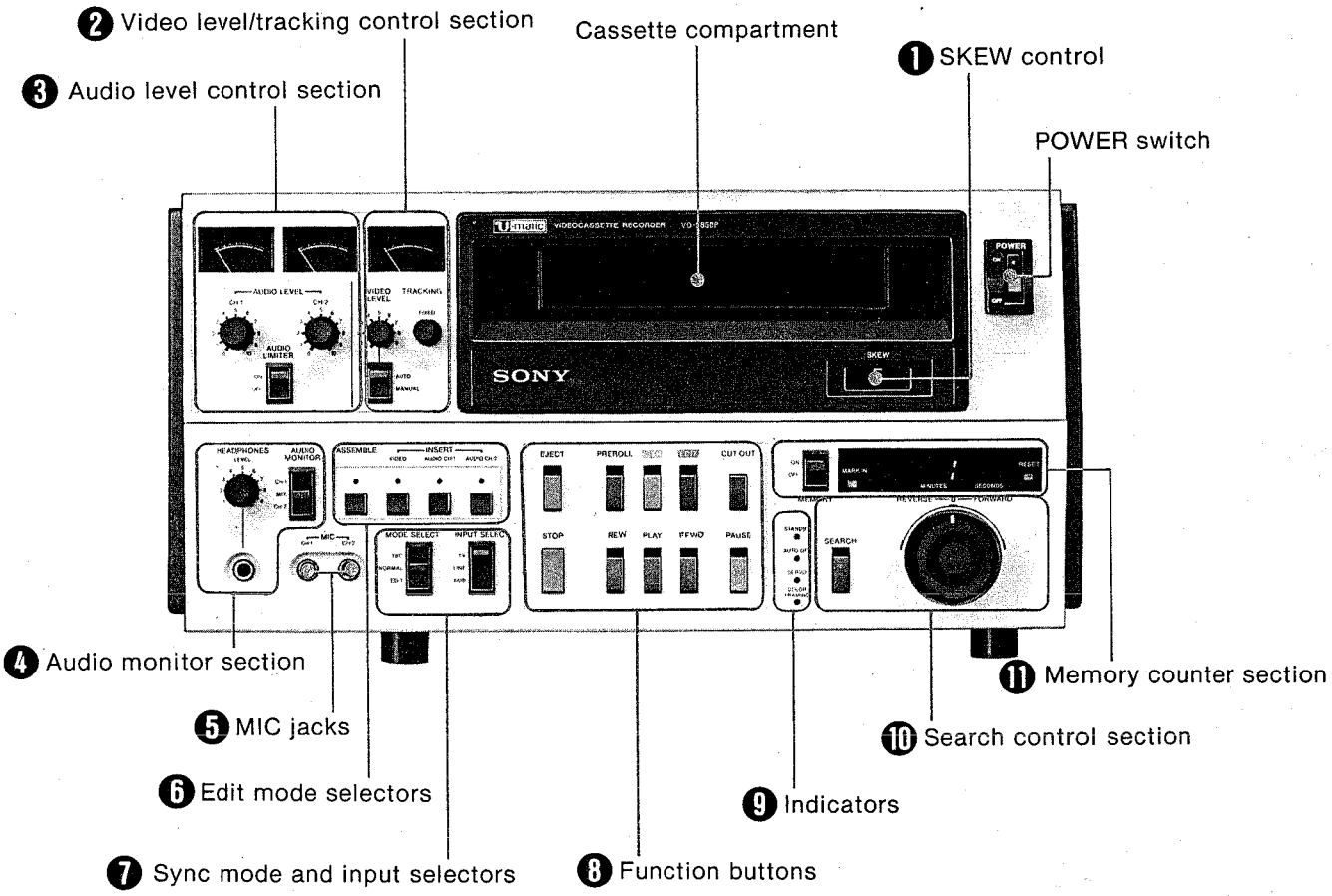
TO DETERMINE THE AMOUNT OF TAPE ON THE REEL

The amount of tape remaining can be seen in the mirror inside the cassette compartment.

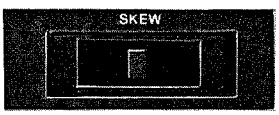


LOCATION AND FUNCTION OF CONTROLS

FRONT PANEL



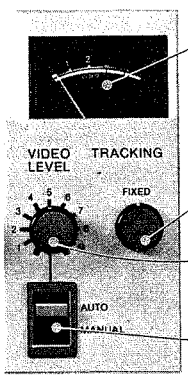
❶ SKEW control



This control adjusts tension on the tape. Slide the control to the right or the left to obtain a normal picture when picture "hooking" distortion appears in the upper part of the screen. Normally, set the control to the center position. This control returns automatically to the center position when the unit is set to the record or edit mode.

- Do not move this control during recording or editing.

❷ Video level/tracking control section



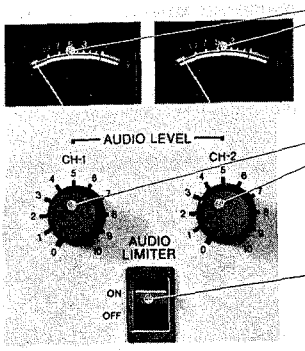
VIDEO LEVEL/TRACKING meter
This meter indicates the video recording level during recording and whether or not tracking is correct during playback.

TRACKING control
Turn to minimize the tracking variance between machines so that the tracking meter pointer deflects to the right as far as possible.
Normally, set this control to the center FIXED position.

VIDEO LEVEL control
With the AUTO/MANUAL switch set to MANUAL, turn this control to adjust the video recording level so that the meter pointer swings within the blue zone.

AUTO/MANUAL switch
AUTO: The video recording level will be adjusted automatically.
MANUAL: Set to this position to adjust the video recording level manually.

❸ Audio level control section

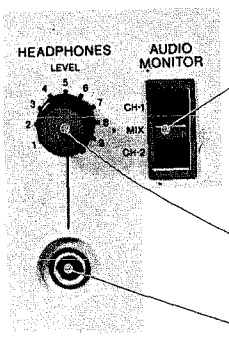


AUDIO LEVEL meters
These meters indicate the audio recording level during recording and the audio playback level during playback.

AUDIO LEVEL controls
These controls adjust the audio recording level of the channel 1 or 2 separately. Turn the controls so that the meter pointers swing up to "0" at their maximum deflection.

AUDIO LIMITER switch
Set the switch to ON when recording a program which contains peaks such as live recording. The audio limiter circuitry will be activated to minimize audio distortion at the peaks. For normal recording and when adjusting the audio recording level, set the switch to OFF.

❹ Audio monitor section

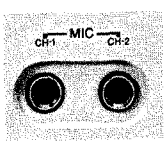


AUDIO MONITOR switch
This switch selects the monitoring sound through a video monitor or headphones.
CH-1 : To hear the sound recorded on channel 1 only.
MIX : To hear the channel 1 sound from the left headphone and the channel 2 sound from the right headphone or to hear the mixed sound of the channel 1 and channel 2 through the video monitor connected to the AUDIO MONITOR jack or TV connector.
CH-2 : To hear the sound recorded on channel 2 only.
● This switch does not affect the audio outputs of the LINE OUT jacks.

HEADPHONES LEVEL control
This control adjusts the volume at the headphones.

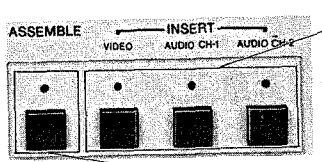
HEADPHONES jack (stereo phone jack)

❺ MIC jacks (phone jacks)



For microphone recording, connect microphones with phone plugs here. The CH-1 jack is for the left microphone and the CH-2 jack is for the right microphone. When a microphone is connected, the corresponding LINE IN jack will be automatically cut off.
To connect microphones with mini plugs, use the optional PC-2A plug adaptors.

❻ Edit mode selectors



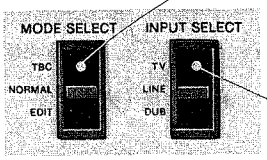
INSERT buttons and indicators
These buttons select the signal(s) to be inserted when editing. The indicator(s) corresponding to the button(s) pressed will light.
VIDEO : To insert the video signal.
AUDIO CH-1 : To insert the sound on audio channel 1.
AUDIO CH-2 : To insert the sound on audio channel 2.
● Two or more buttons can be pressed simultaneously.

ASSEMBLE button and indicator
Press for assembly editing. The indicator will light.

To cancel the mode selected by one of these buttons, press the button again. The indicator will go out.

To change the mode from assembly to insert or vice versa, first cancel the previously selected mode then press the appropriate buttons.

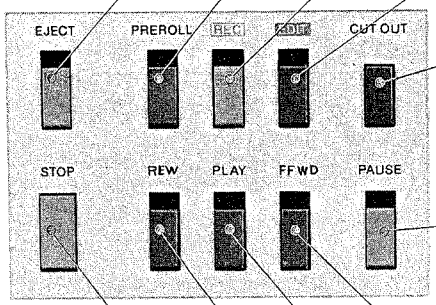
❼ Sync mode and input selectors



MODE SELECT switch
This switch selects the sync mode according to the connected equipment or to the operating mode.
TBC: For operation with a time base corrector.
NORMAL: For normal recording or playback.
EDIT: For editing.
●If the switch is set to TBC without connecting a time base corrector, the vertical sync does not lock in the search mode and the picture rolls vertically.

INPUT SELECT switch
This switch selects the signal to be recorded.
TV: To record the signal from the TV connector.
LINE: To record the signal from the VIDEO IN connector.
DUB: To record the signal from the DUB IN connector.

❽ Function buttons



EJECT button
Press to eject the video cassette.

PREROLL button and indicator
Press this button in pause mode and the tape rewinds by 5 seconds and stops in pause mode.
●When the COLOR FRAMING switch is set to ON, the preroll time will be 10 seconds.

REC (record) button and indicator
For recording, press this button simultaneously with the PLAY button. While this button is pressed, the E-to-E mode picture* can be seen.

EDIT button and indicator
For editing, press this button simultaneously with the PLAY button. While this button is pressed, the E-to-E mode picture* can be seen.

CUT OUT button
Press this button when assembly or insert editing is finished. The edit mode is cancelled and the tape will continue to run in playback mode. When this button is pressed in record mode, the record mode is cancelled, and when this button is pressed in pause mode after the preroll, the edit mode is cancelled.

PAUSE button and indicator
Press to stop the tape momentarily. To start the tape, press again. When this button is pressed during playback, a still picture will be obtained. If the PLAY, F FWD, REW or SEARCH button is pressed during the pause mode, the pause mode will be released and the tape will run in the mode designated by the button pressed.

F FWD (fast forward) button and indicator
Press to advance the tape rapidly. The E-to-E mode picture* can be seen on the monitor screen.

PLAY button and indicator
Press to play the tape back. Simultaneously pressing this button with the REC button sets the unit in the record mode; simultaneously pressing it with the EDIT button sets the unit in the edit mode.

REW (rewind) button and indicator
Press to rewind the tape. The E-to-E mode picture* can be seen on the monitor screen.

STOP button
Press to stop the operation of the unit. The E-to-E mode picture* can be seen on the monitor screen.

⑨ Indicators

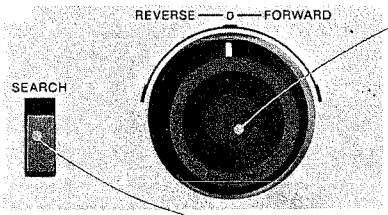
STAND BY indicator
This indicator lights while the tape is being threaded or unthreaded.

AUTO OFF indicator
This indicator lights to indicate that the moisture is condensed inside the unit. While the AUTO OFF indicator is lighting, the unit does not operate even if the function button is pressed.

SERVO indicator
This indicator lights when the drum servo and capstan servo are locked and the tape transport mechanism is stabilized. When the tape just begins to move, this indicator may flicker.

COLOR FRAMING indicator
This indicator lights when the color framing switch on the rear panel is set to ON and the color framing servo system functions during auto editing or editing using the PREROLL button.

⑩ Search control section



Search dial
After pressing the SEARCH button, turn this dial to control the speed and direction of tape travel during the search for a particular point on the tape. You can vary the tape speed from 1/30 to 5 times normal playback speed. When the dial is set at the center "0" position, the picture will be still.
● When this dial is used, the servo system is not locked so the guard band noise flows on the playback picture.

SEARCH button
Press to engage the search dial.

⑪ Memory counter section

RESET button
Press to reset the time counter to "00 minutes 00 seconds". The point memorized by the MARK IN button will be cancelled.

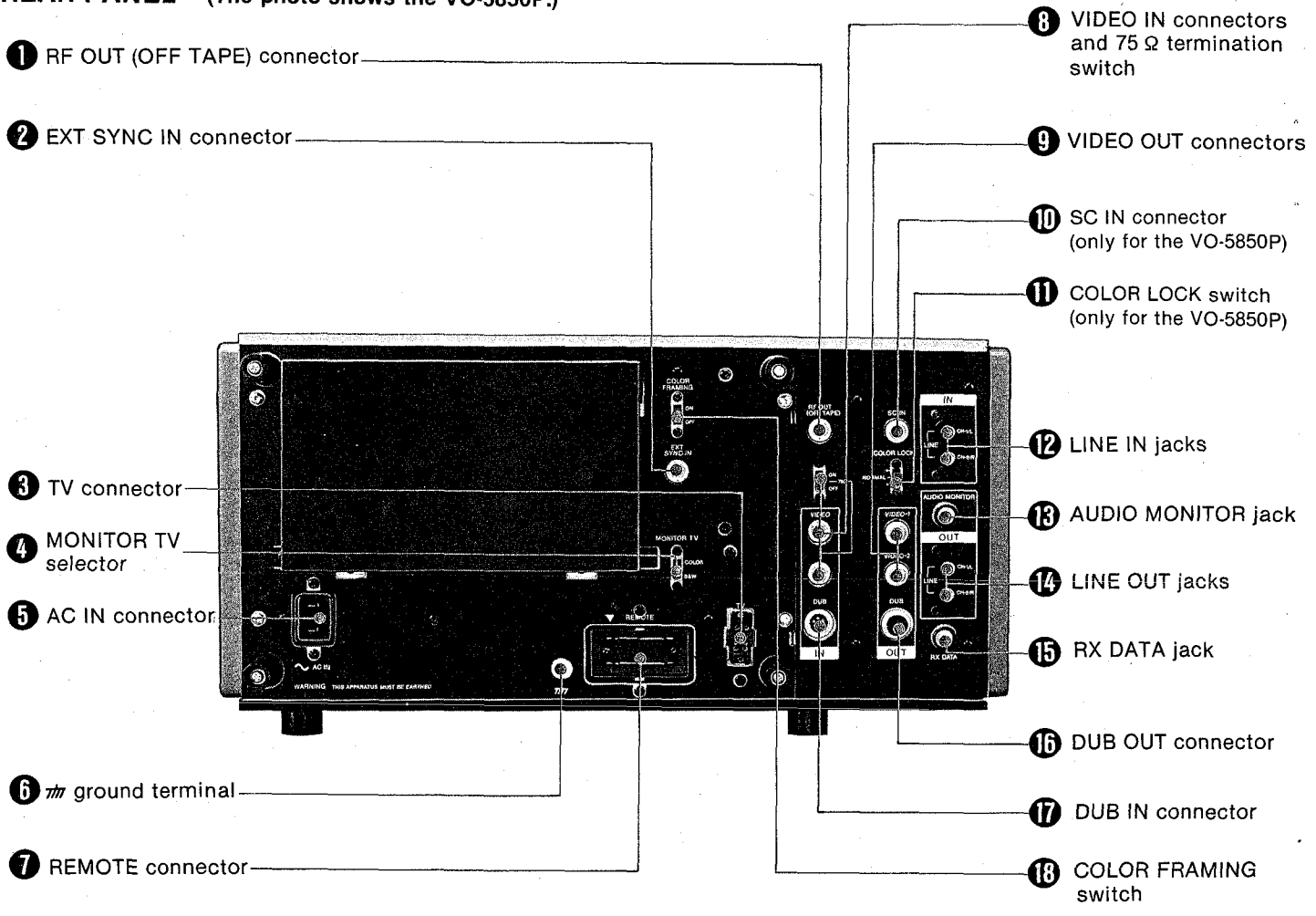
Time counter
This counter counts the CTL signals on the tape during playback, and the CTL signals being recorded during recording and indicates the tape running time at the normal playback speed in minutes and seconds (up to 99 minutes 59 seconds).

MARK IN button
Press to memorize a particular point on the tape and the time indicator keeps indicating the memorized point while the button is pressed.
The memory function can be activated at any position of the MEMORY switch.

MEMORY switch
When this switch is set to ON, the tape will automatically stop the point where the MARK IN button was pressed or, if the MARK IN button has not been pressed, where the time counter indicates "00 00" in the rewind or search mode.
● During editing or when the REMOTE connector is used, be sure to set this switch to OFF.

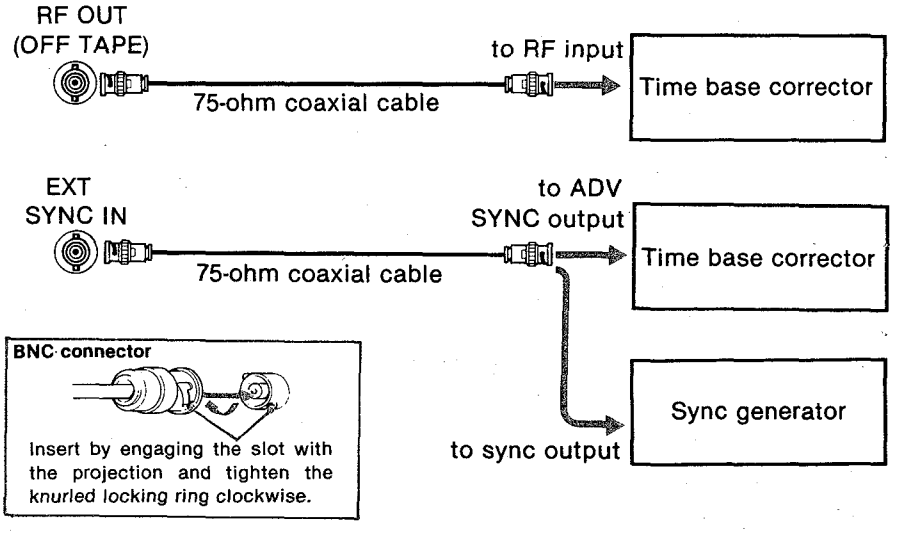
*E-to-E mode picture
The input video signal which is frequency-modulated and then demodulated in the recorder, is displayed on the monitor. This is the E-to-E (Electronics to Electronics) mode picture.

REAR PANEL (The photo shows the VO-5850P.)

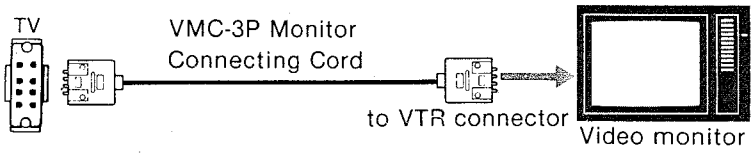

❶ RF OUT (OFF TAPE) connector
❷ EXT SYNC IN connector
❸ TV connector
❹ MONITOR TV selector
❺ AC IN connector
❻ ⏚ ground terminal
❼ REMOTE connector
❽ VIDEO IN connectors and 75 Ω termination switch
❾ VIDEO OUT connectors
❿ SC IN connector (only for the VO-5850P)
⓫ COLOR LOCK switch (only for the VO-5850P)
⓬ LINE IN jacks
⓭ AUDIO MONITOR jack
⓮ LINE OUT jacks
⓯ RX DATA jack
⓰ DUB OUT connector
⓱ DUB IN connector
⓲ COLOR FRAMING switch

❶ RF OUT (OFF TAPE) connector (BNC type)
This connector supplies the FM output signal to a time base corrector.

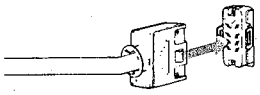
❷ EXT SYNC IN connector (BNC type)
Connect to the advanced sync signal output of a time base corrector or an external sync generator. The recorder will synchronize with this signal.


RF OUT (OFF TAPE)
to RF input
75-ohm coaxial cable
Time base corrector
EXT SYNC IN
to ADV SYNC output
75-ohm coaxial cable
Time base corrector
Sync generator
to sync output
BNC connector
Insert by engaging the slot with the projection and tighten the knurled locking ring clockwise.

❸ TV connector (8-pin)
Connect to the 8-pin VTR connector of a video monitor.
The video and audio input and output connections can be made with a single cable. When this connector is used, the audio signal will be recorded on audio channel 2. During playback the channel selected by the AUDIO MONITOR switch will be heard through the speaker on the video monitor.



Be sure that the connectors are properly aligned before connecting the cable.

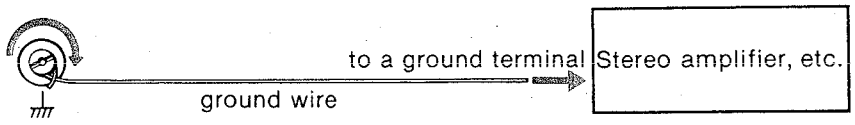


To remove, press the buttons on both sides of the connector.

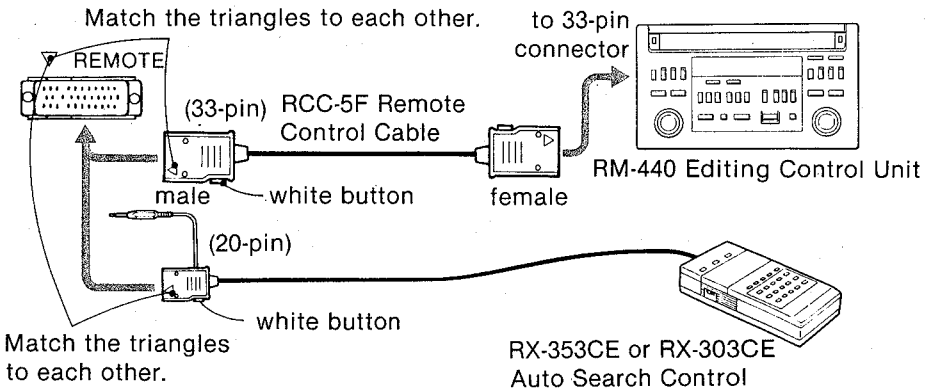
❹ MONITOR TV selector
Set this selector according to the type of video monitor used.
COLOR: For a color monitor.
B & W: For a black and white monitor.

❺ AC IN connector
Connect the supplied ac power cord here.

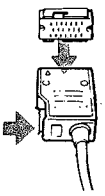
❻ ⏚ ground terminal
To reduce hum in the audio signal, connect this terminal to a ground terminal of the connected audio equipment.



❼ REMOTE connector (33-pin)
Connect an optional editing control unit, auto search control unit or remote control unit to this connector.
- Before connecting the remote control cable, check whether the connector is male or female.
- The REMOTE connector accepts a 20-pin connector. A plug adaptor is unnecessary.

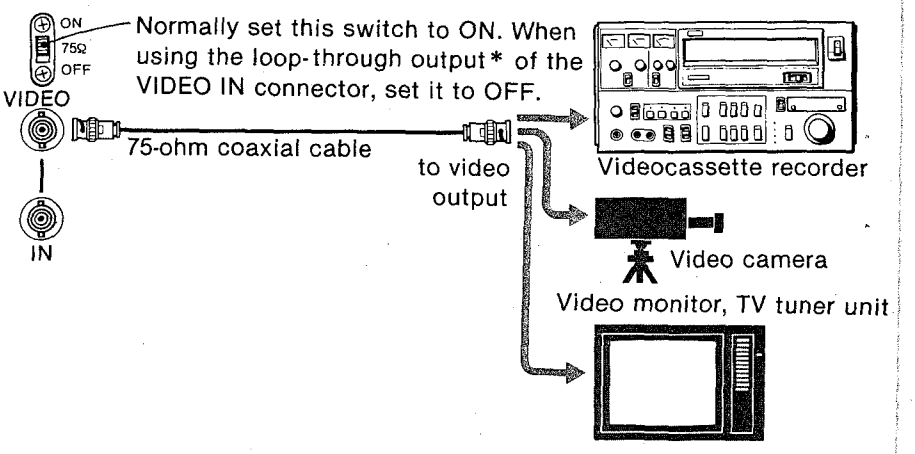


To disconnect the cable, press the white button on the connector and pull the connector out.

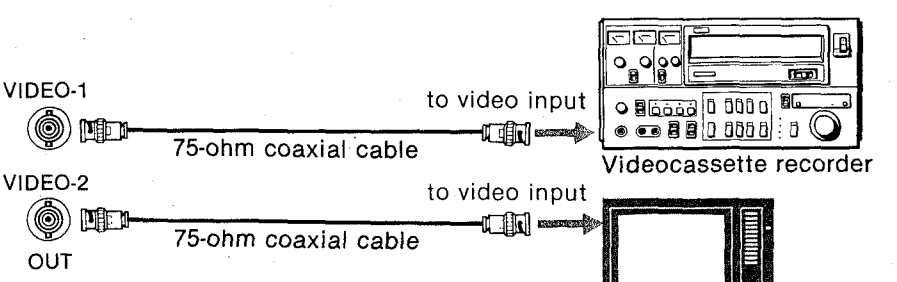


❽ VIDEO IN connectors (BNC type) **and 75Ω termination switch**
Connect the video signal to be recorded to one of these connectors.

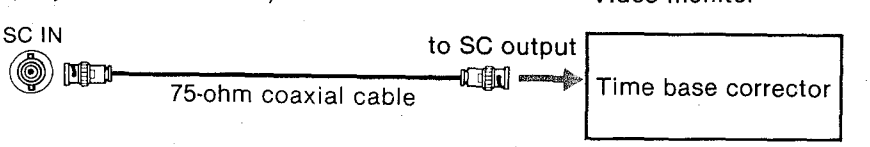
*These two connectors are in "loop-through" configuration, so that the input signal from one connector is fed directly to the other connector. Use this loop-through output as the video input source for other video equipment.



❾ VIDEO OUT connectors (BNC type)
The video signals are simultaneously output at these connectors.

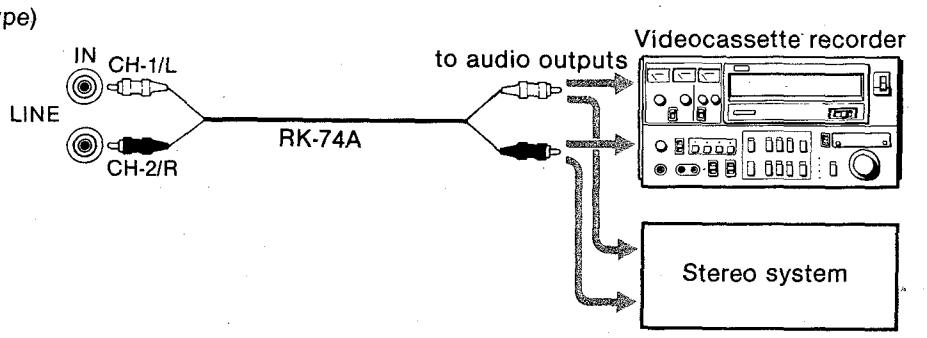


❿ SC IN (subcarrier input) connector (BNC type) (only for the VO-5850P)
Connect the subcarrier from the time base corrector here.

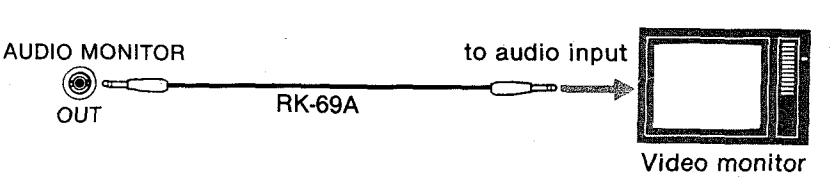


⓫ COLOR LOCK switch (only for the VO-5850P)
As a rule, set to NORMAL. If the playback picture has no color or if the hue is abnormal set the switch to the upper or lower position marked [●].

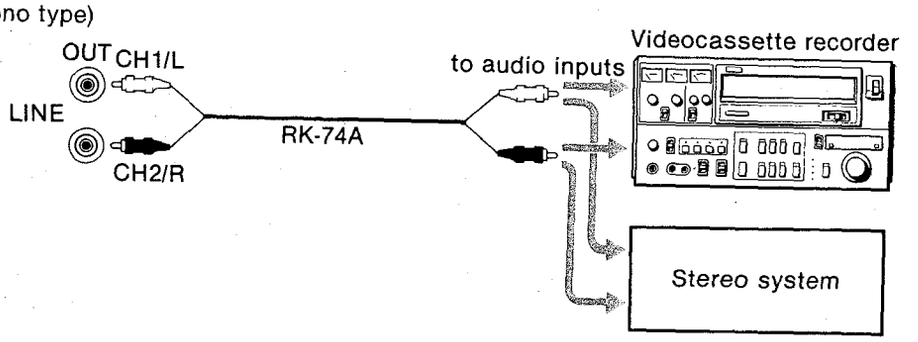
⓬ LINE IN (audio line input) jacks (phono type)
Connect the audio signal to be recorded here.



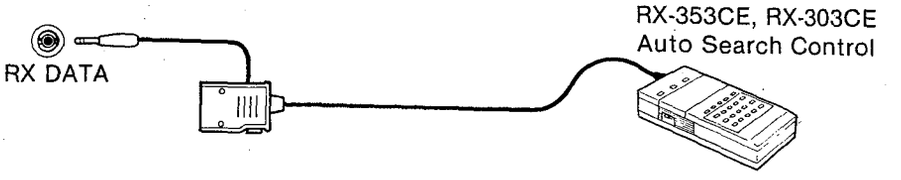
⓭ AUDIO MONITOR jack (mini type)
Connect to the audio input jack on the video monitor. The signal selected by the AUDIO MONITOR switch on the front panel is output here.



⓮ LINE OUT (audio line output) jacks (phono type)
The signals recorded on the audio channel 1 and audio channel 2 are output here.

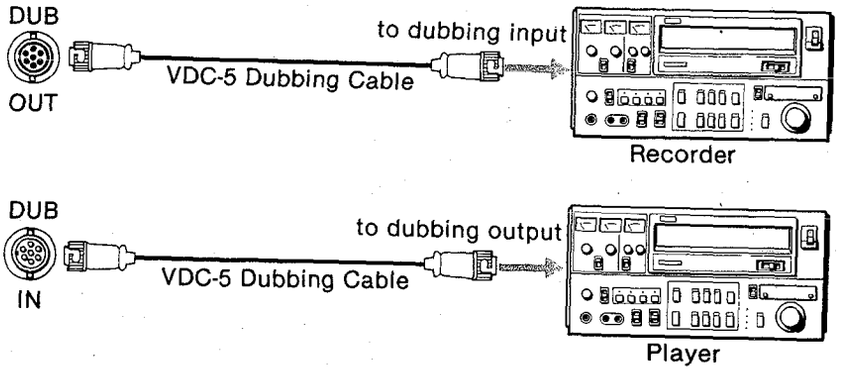


⓯ RX DATA jack (mini type)
For recording the data and reading the data recorded on the tape by the Auto Search Control.

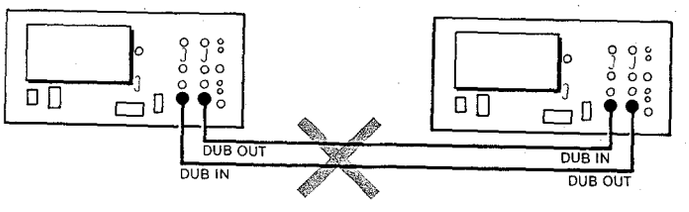


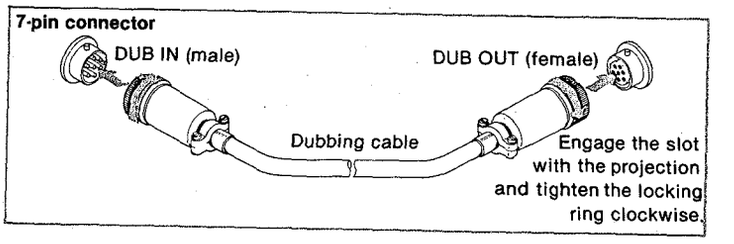
⓰ DUB OUT connector (7 pin)
When duplicating a tape using a recorder with a dubbing connector, the video signal is connected using this connector.

⓱ DUB IN connector (7 pin)
When duplicating a tape using a player with a dubbing connector, the video signal is connected using this connector.



Note
Do not connect the dubbing connectors in parallel.




7-pin connector
DUB IN (male)
DUB OUT (female)
Dubbing cable
Engage the slot with the projection and tighten the locking ring clockwise.

⓲ COLOR FRAMING switch
Normally set the switch to ON, and the color framing system functions during editing. At the ON position, the preroll time will be 10 seconds.
At the OFF position, the color framing system does not function, but the preroll time will be shortened to 5 seconds.

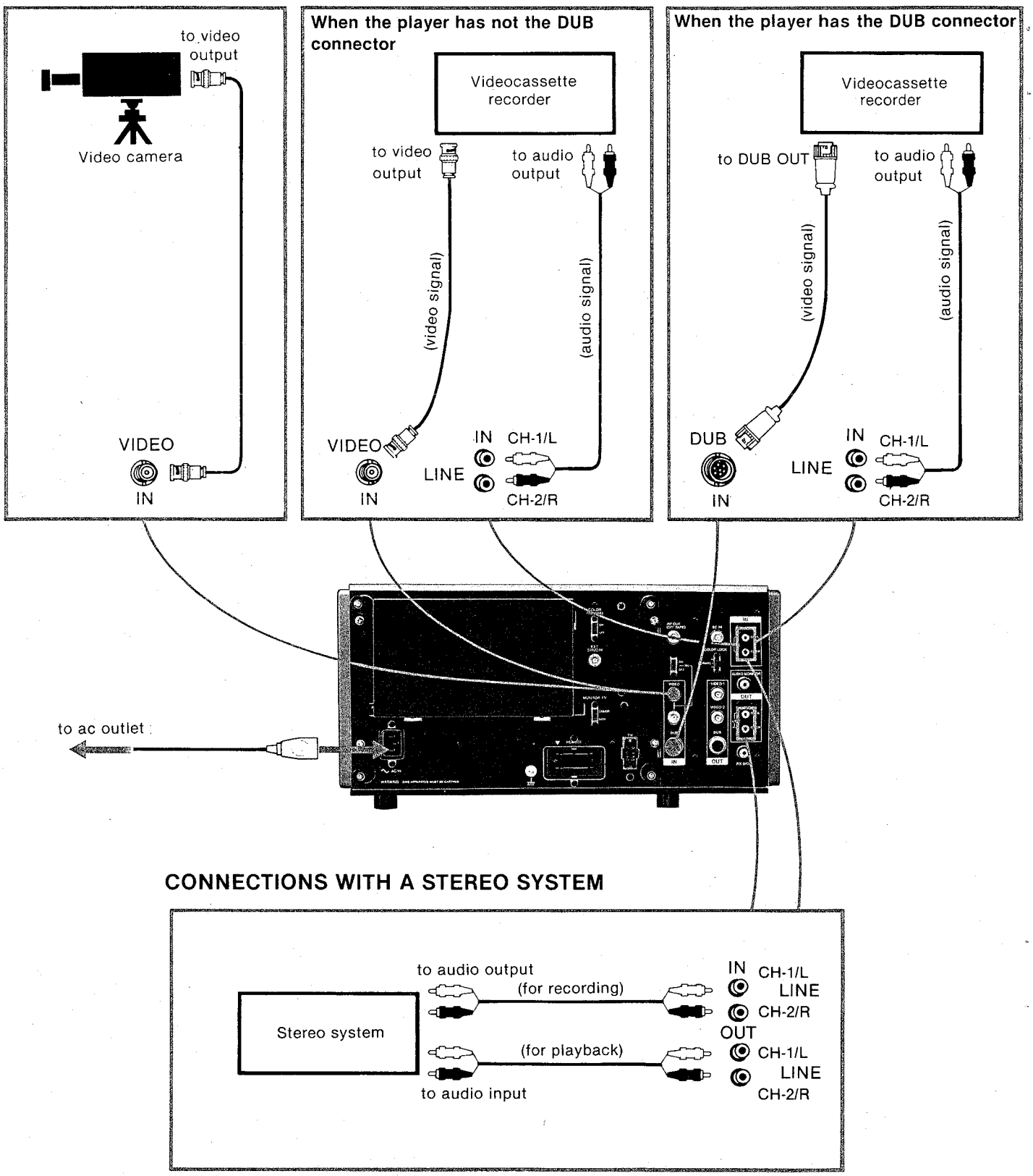
RECORDING AND PLAYBACK

CONNECTIONS

CAMERA RECORDING

DUPLICATING A TAPE

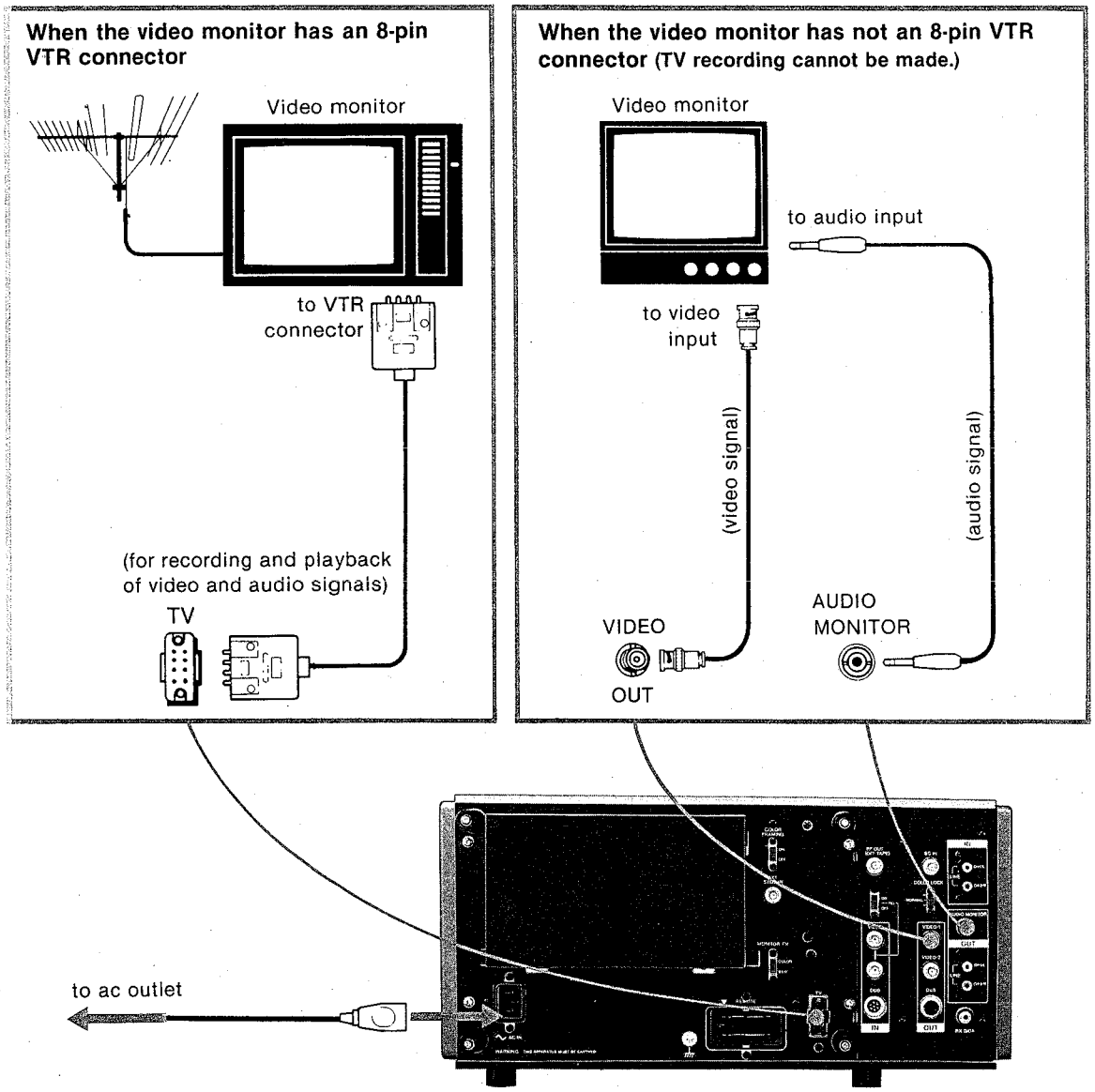
● Connect a videocassette recorder in either of the following ways.



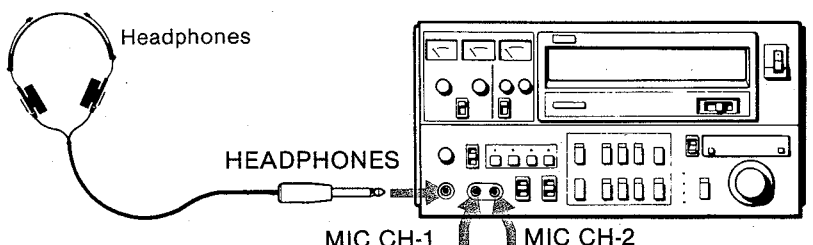
CONNECTIONS WITH A STEREO SYSTEM

RECORDING TV PROGRAM
PLAYBACK
MONITORING THE RECORDING PICTURE

●Connect the video monitor in either of the following ways.

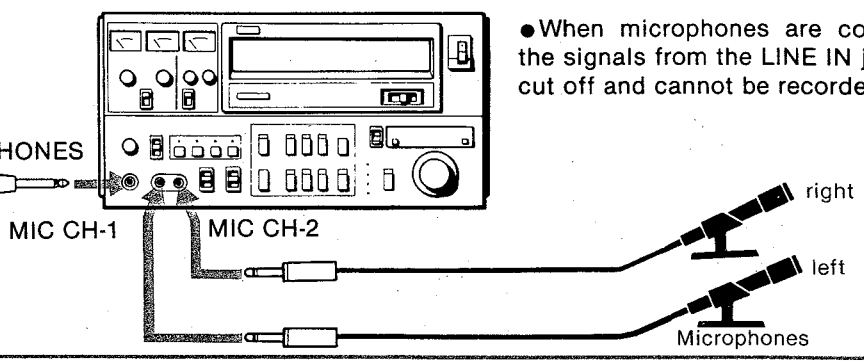

When the video monitor has an 8-pin VTR connector
Video monitor
to VTR connector
(for recording and playback of video and audio signals)
TV
When the video monitor has not an 8-pin VTR connector (TV recording cannot be made.)
Video monitor
to audio input
to video input
(video signal)
(audio signal)
VIDEO OUT
AUDIO MONITOR
to ac outlet

TO HEAR THE SOUND USING HEADPHONES



MICROPHONE RECORDING

●When microphones are connected, the signals from the LINE IN jacks are cut off and cannot be recorded.



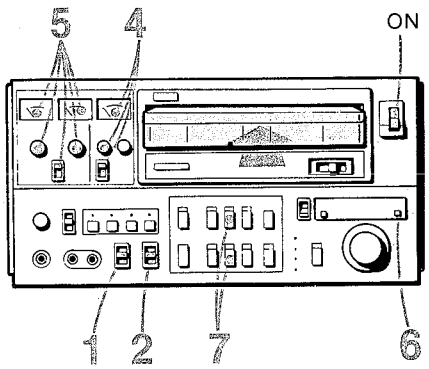
PREPARATIONS

1. Make the necessary connections. (See pages 14 and 15)
2. Turn the power of the video monitor on.
3. Set the input select switch on the video monitor according to the connectors to be used :
   —When the VTR connector is used → VTR
   —When the video input connector is used → LINE
4. Set the MONITOR TV switch on the rear of the VO-5850P/VO-5850S according to the monitor to be used.
   —When a color video monitor is used → COLOR
   —When a black and white monitor is used → B & W

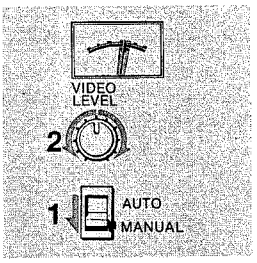
RECORDING

Turn the power on and insert a video cassette.

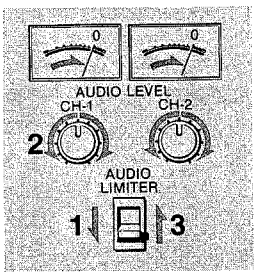
●Check that the red button on the bottom of the video cassette is in place before insertion. If a cassette without a red button is inserted, the E-to-E mode picture displayed will be cut off.



1. Set the MODE SELECT switch to NORMAL.
2. Set the INPUT SELECT switch according to the connector to be used.
   —When the TV connector is used to record a TV program → TV
   —When the VIDEO IN connector is used to record the camera picture or a TV program or to duplicate a tape → LINE
   —When the DUB IN connector is used to duplicate a tape → DUB
3. Prepare the program to be recorded.
   —To record a TV program, select the channel.
   —To record the camera picture, adjust the camera.
   —To duplicate a tape, play the tape to be duplicated.
4. Adjust the video recording level.
   —Usually set the AUTO/MANUAL switch to AUTO and the video recording level will be automatically adjusted.
   —For manual adjustment
   1) Set the AUTO/MANUAL switch to MANUAL.
   2) Turn the VIDEO LEVEL control so that the meter pointer stays in the blue zone on the scale.



5. Adjust the audio recording level.
   1) Set the AUDIO LIMITER switch to OFF.
   2) Turn the AUDIO LEVEL controls so that the meter's pointers swing up to "0" at their maximum deflection. The CH-1 control adjusts the level of audio channel 1 (left) and the CH-2 control adjusts the level of audio channel 2 (right).
   ●When a TV program connected to the TV connector is recorded, the sound will be recorded on audio channel 2.
   3) When recording a program which contains sharp peaks, we recommend setting the AUDIO LIMITER switch to ON to minimize audio distortion at these peaks.



6. Press the RESET button so that the time counter indicates "00 00".
7. Press the REC and PLAY buttons simultaneously. Recording will begin.

When the recording is finished, press the STOP button.

●If recording is done to the end of the tape, the tape automatically rewinds to the beginning and stops.

CAUTION

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

'O STOP THE TAPE MOMENTARILY)URING RECORDING

'ress the PAUSE button. The tape will stop. The E-to-E mode icture remains on the monitor screen, but is not recorded. 'o resume recording, press the PAUSE button again.

• If you want to start playback at this point, presss the CUT)UT button to cancel the record mode, then press the 'AUSE button. Playback will begin.

'he long pause mode

: the pause mode continues for more than 8 minutes, the ape around the head drum automatically slackens to pro- ect the video head and the tape.
'his is called the long pause mode.

'APE DUPLICATION

'he DUB IN and DUB OUT connectors of the VO-5850P/ 'O-5850S are for duplicating a video signal. If the player has imilar type duplicating connectors, connect the recorder nd player with a VDC-5 dubbing cable (optional).

• When the DUB IN connector is used, be sure to set the IN- 'UT SELECT switch to DUB.

• When the DUB OUT and IN connectors are used, the E-to-E node picture on the monitor connected to the recorder may oll vertically when the player is in the pause or search node.

TO HEAR THE SOUND BEING RECORDED

When a video monitor is connected to the TV connector or the AUDIO MONITOR jack, or when headphones are used, set the AUDIO MONITOR switch to the appropriate position to hear the desired sound.

to hear the sound on the channel 1 only
to hear the sound on both channel 1 and 2 simultaneously
to hear the sound on the channel 2 only

- The LINE CH-1 and CH-2 OUT jacks output the sound on channel 1 and channel 2, respectively. They are not affected by the setting of the AUDIO MONITOR switch.
- The volume of the headphones can be adjusted by the HEADPHONES LEVEL control.

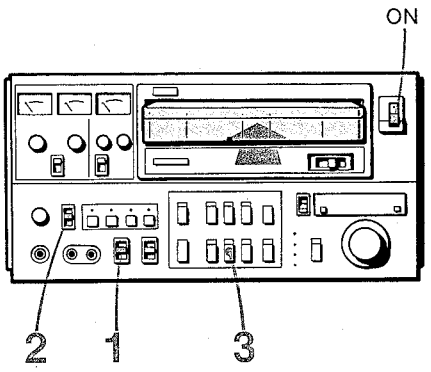
ERASING

Recorded material is erased automatically when new material is recorded. To erase recorded material without recording new material, follow this procedure:

1. Disconnect all input connections to the TV, VIDEO IN, DUB IN, LINE CH-1 and CH-2 IN connectors.
2. Insert a video cassette with a red button on the bottom.
3. Set the machine in the record mode. The recorded material will be erased.

PLAYBACK

Turn the power on, and insert a recorded video cassette.



1. Set the MODE SELECT switch to NORMAL.
   (If a time base corrector is used, set this switch to TBC.)
2. Usually set the AUDIO MONITOR switch to MIX.
   (If you want to hear only the sound on the audio channel 1, set the switch to CH-1 ; if you want to hear only the sound on the audio channel 2, set it to CH-2.)
   ● This switch has no effect on the sound output from the LINE OUT jacks.
3. Press the PLAY button. Playback will begin.

To stop playback, press the STOP button.

● When the tape is played back to the end, it automatically rewinds to the beginning and stops.

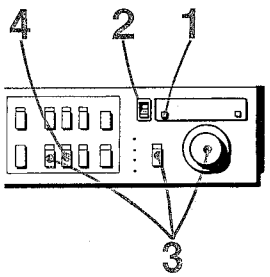
TO STOP THE TAPE MOMENTARILY DURING PLAYBACK

Press the PAUSE button. The tape stops and a still picture will appear on the monitor screen. To resume playback, press the PAUSE button again or press the PLAY button.

The long pause mode
If the pause mode continues for more than 8 minutes, the tape around the head drum automatically slackens to protect the video head and the tape, and the still picture disappears. This is called the long pause mode.

TO LOCATE A PARTICULAR POINT QUICKLY

You can locate a particular point quickly using the MARK IN button and the MEMORY switch.



1. Press the MARK IN button at the desired point during the record, playback, fast-forward or rewind mode.
2. Set the MEMORY switch to ON.
3. Run the tape in the rewind or search mode.
   The tape will stop at the point where the MARK IN button was pressed.
   ● When the tape runs in the search mode, a still picture can be seen when the tape stops.
4. Press the PLAY button. Playback will begin at that point.

● You can locate only one point using the MARK IN button. If the MARK IN button is pressed several times, only the last point will be searched for.
● The memory of the MARK IN button is cancelled when the power is turned off, or the RESET button is pressed. When this happens, the tape will stop at the time counter's "00 00" position.
● When the memorized point is searched for by pressing the REW button in the playback mode, the searched point may differ from the memorized point up to 3 seconds.

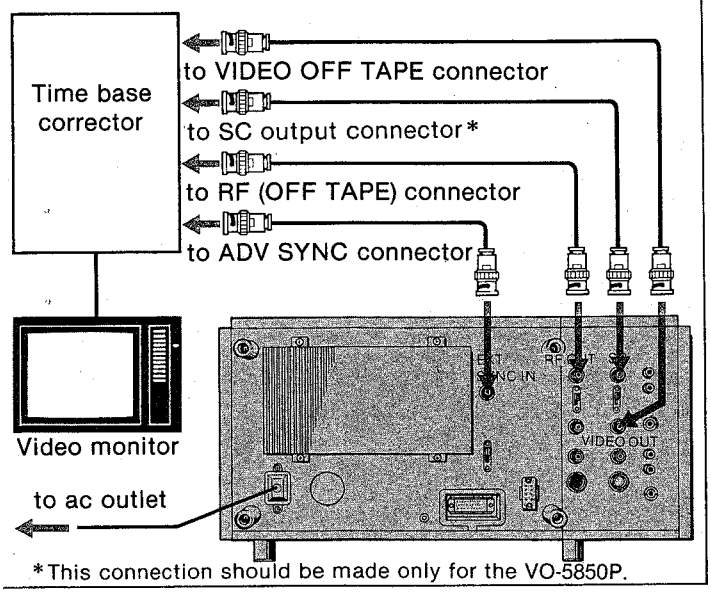
PLAYBACK USING THE PREROLL BUTTON

Using the PREROLL button, you can easily obtain a stable playback picture at a particular time.
Search for the point on the tape from where you want to start playback and stop the tape with the PAUSE button or with the search dial set to "0", then press the PREROLL button. Press the PAUSE button exactly 5 seconds (10 seconds when the COLOR FRAMING switch is set to ON) before you want playback to begin.
The tape starts running and the tape transportation will be stable at time playback begins.

USING A TIME BASE CORRECTOR

The best possible playback picture can be obtained when a time base corrector is used. Connect the time base corrector as illustrated below, and set the MODE SELECT switch to TBC.

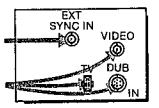
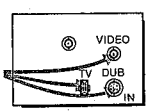
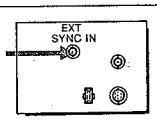
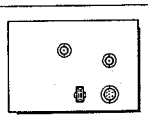
● For details on the operation of the time base corrector, refer to the instruction manual furnished with it.



*This connection should be made only for the VO-5850P.

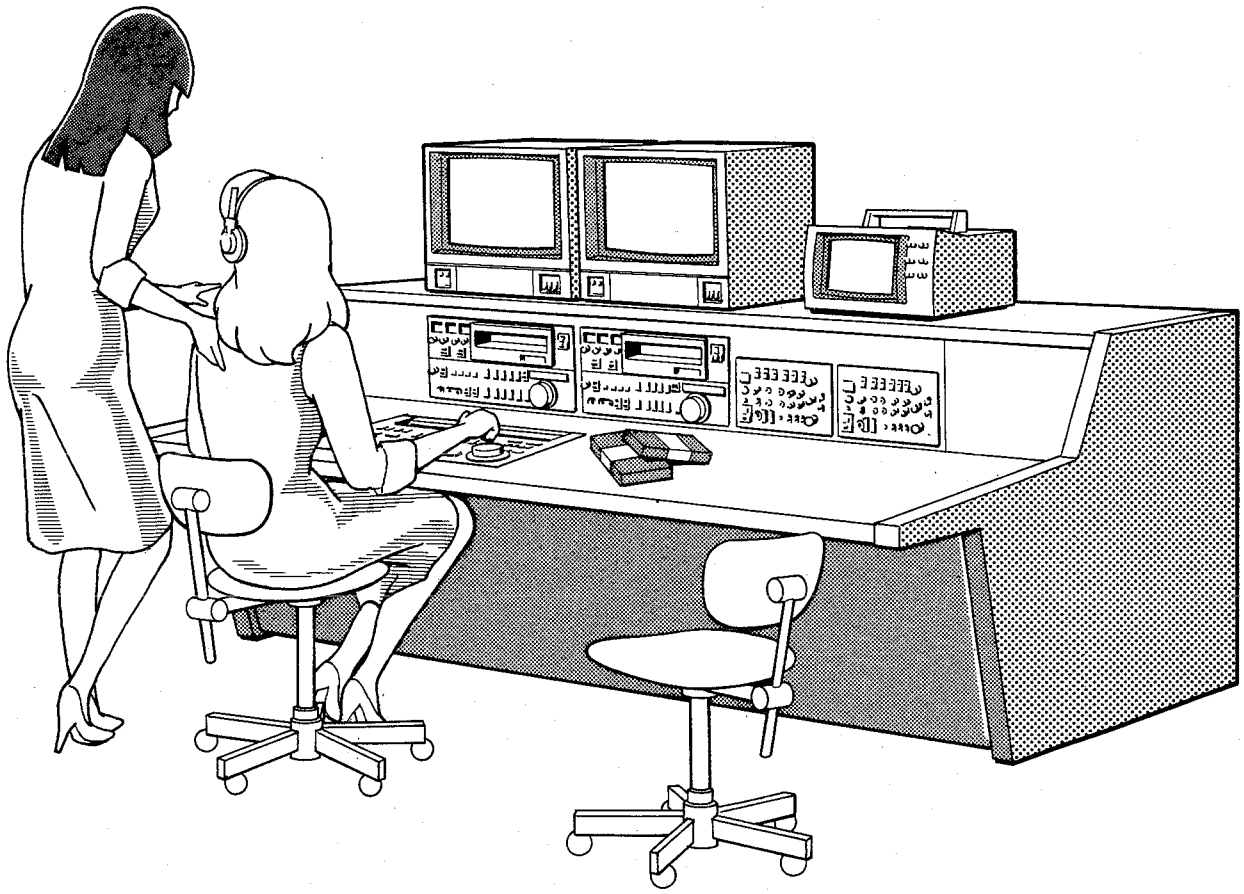
SYNC SYSTEM

The VO-5850P/VO-5850S can operate with the internal sync system when no external signal is input, or with the external sync system when an external signal is input. The reference signal is changed depending upon the setting of the MODE SELECT switch and the input signals.

External signals	Recording	Playback
Sync signal / Video signal 	Sync with the video signal	MODE SELECT Sync with the sync signal / Sync with the video signal
Video signal 	Sync with the video signal	
Sync signal 	Sync with the sync signal	
No input signal 	Sync with the signal generated by the built-in sync generator	

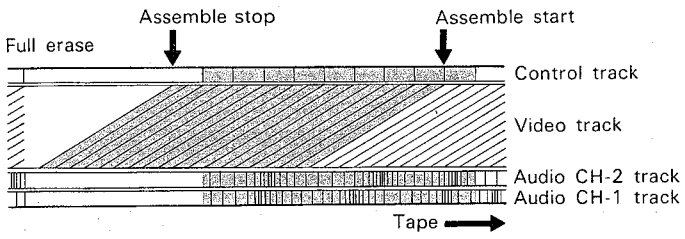
EDITING

Editing—tailoring recorded material into scenes, arranging these scenes in the appropriate order, adding sound effects, etc.—is an essential process in making a video program. In the electronic editing process, the tape on the player is edited and the result recorded on the recorder while both tapes on the recorder and the player are running.
There are two kinds of electronic editing : assembly editing and insert editing.



ASSEMBLY EDITING

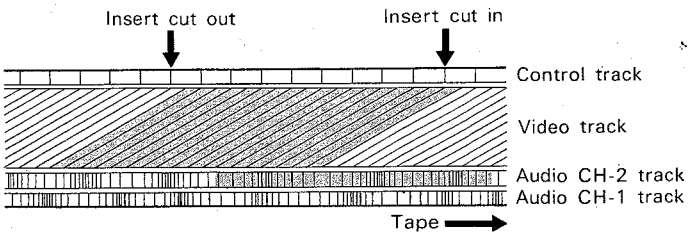
The video and audio signals are edited simultaneously. The control signals are also edited at the same time so that you can edit the scenes on a new tape as easy as possible.



Note
Because at the cut-out point the erased portion is triangular, the picture will be unstable at that point when assembly editing is used to add a new scene to the recorded tape.

INSERT EDITING

The video, audio channel 1 and audio channel 2 can be edited independently or simultaneously. In the insert editing, the signals are edited in reference to CTL signals previously recorded on the tape.
Insert editing is recommended in the following cases :
—for inserting new scenes on a recorded tape.
—for adding the sound effects or commentary onto a tape which already has the video signals recorded on it.
—for adding video signals onto a tape which already audio signals recorded on it.



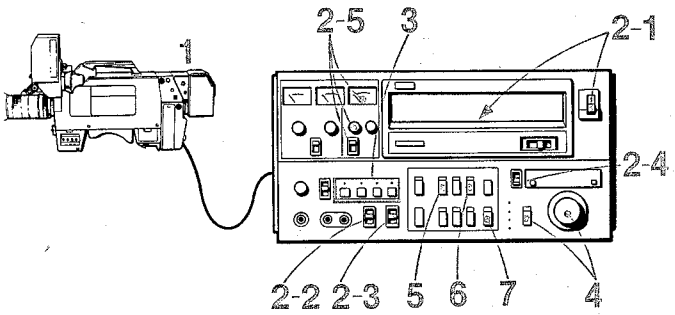
Note
Continuous CTL signals must be recorded before insert editing.

EDITING WITH THE PREROLL BUTTON

'he signals from a camera or another videocassette recorder can be edited easily and moothly by using the PREROLL button.

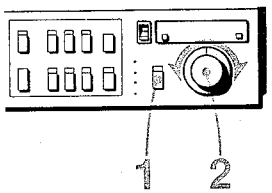
›When editing using the PREROLL button, the CTL signals should be recorded for at least 5 econds (10 seconds when the COLOR FRAMING switch is set to ON) before the edit-in oint.

:DITING A CAMERA PICTURE



SEARCH OPERATION

A particular point can be quickly located with the search dial.
Press the SEARCH button and turn the search dial to look for the edit-in point. The search dial allows you to vary the playback speed from 1/30 to 5 times the normal playback speed in both directions. Set the search dial to the center "0" position at the edit-in point. The tape stops and a still picture can be seen on the monitor.



Notes

- During search operation, the servo system is not locked, so guard band noise flows on the playback picture.
- When the video signal is connected using the DUB connectors, the E-to-E mode picture on the monitor connected to the recorder may roll vertically when the player is in the pause or search mode.
- When the video signal is connected using the VIDEO connectors, the color of the E-to-E mode picture on the monitor connected to the recorder may be lost when the player is in the search mode. If this happens to the VO-5850P, set the COLOR LOCK switch to either upper or lower position.
- If the MODE SELECT switch is set to TBC but a time base corrector is not connected, the vertical sync does not lock and the picture rolls vertically.

1. Turn the camera on and make the necessary adjustments on the camera.
2. Prepare the recorder.
   1) Turn the power on and insert a video cassette.
   2) Set the MODE SELECT switch to EDIT.
   3) Set the INPUT SELECT switch to LINE.
   4) Set the MEMORY switch to OFF.
   5) Normally set the COLOR FRAMING switch on the rear to ON.
   6) Adjust the video recording level.
3. Decide on the edit mode—either assembly editing or insert editing.
4. Play the tape and decide the edit-in point (the point at which the recording of the camera picture is to begin), and stop the tape with the PAUSE button or the search dial. You can quickly locate the edit-in point with the search dial. (See "Search operation".)
5. Press the PREROLL button.
6. Press the EDIT button.
7. Press the PAUSE button. Playback starts from the prerolled position, and the recorder enters the edit mode after the five second playback, and begins to record the camera picture.

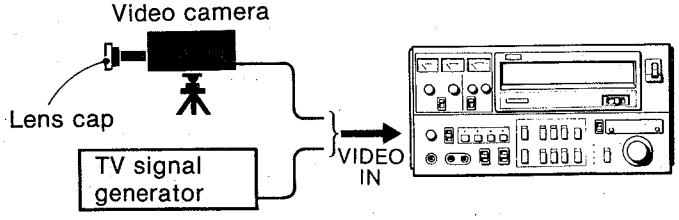
To stop editing, press the CUT OUT button.

TAPE-TO-TAPE EDITING

You can edit the signal from another videocassette recorder in the similar manner as editing a camera picture. Make preparations on the player referring to the "Playback using the PREROLL button" on page 19. After prerolling, press the PAUSE button on the player simultaneously with the PAUSE button on the recorder, and the editing will be performed.

HOW TO RECORD THE CTL SIGNALS

CTL signals are usually recorded together with the video signals. However CTL signals can be recorded by themselves in the following ways:
—Record the signals from a camera whose lens cap is in place, or
—Record the black burst signal from a TV signal generator.



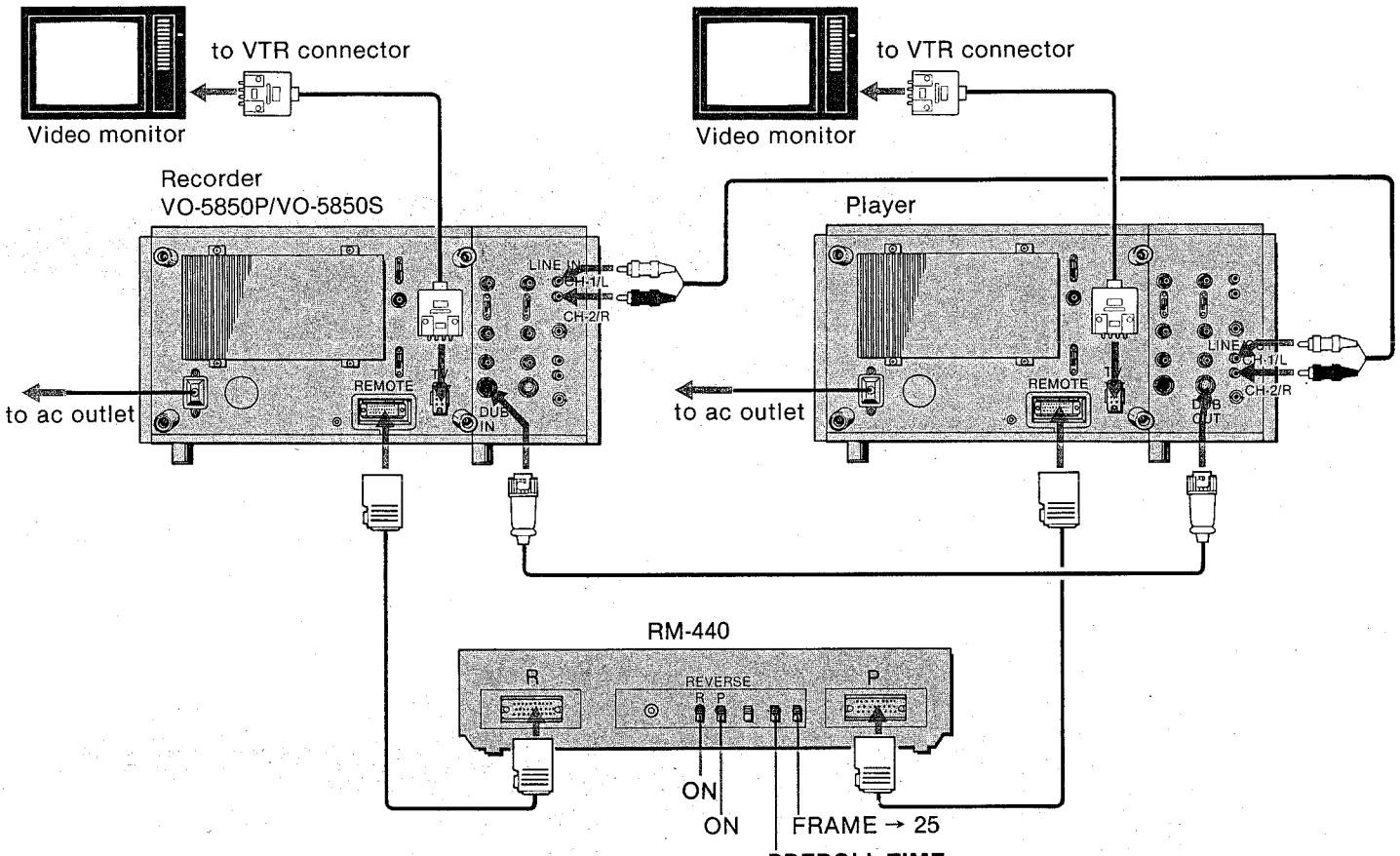
AUTOMATIC EDITING —using the RM-440

When the RM-440 Automatic Editing Control Unit is used with the VO-5850P/VO-5850S, accurate and automatic tape-to-tape editing is possible. Once the edit-in and edit-out points have been memorized on the RM-440, the editing can be done simply by pressing the AUTO EDIT button.

Almost all functions of the RM-440 can be activated when the RM-440 is used with the VO-5850P/VO-5850S. However, picture search is possible only when a KCS cassette is used.

- During picture search, the picture may become monochrome or roll vertically on some monitors. If this happens, release the picture search mode by turning the search dial.

CONNECTIONS

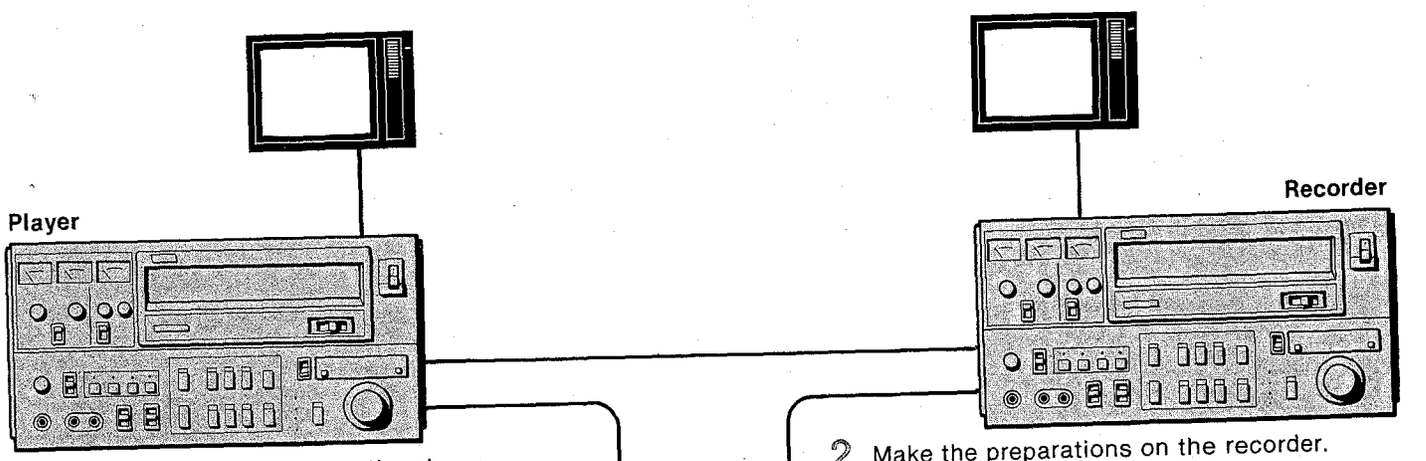


PREROLL TIME

When the COLOR FRAMING switch is set to ON → L

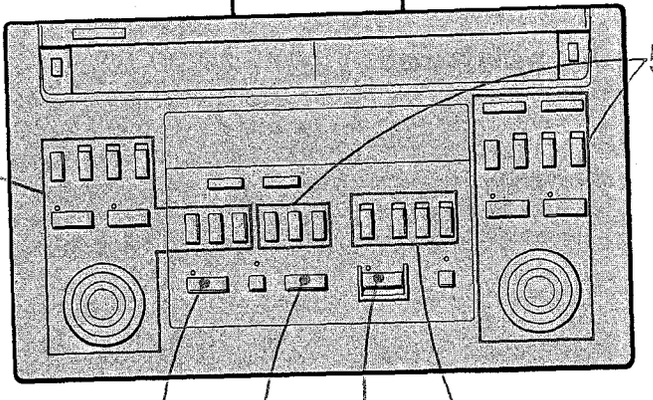
When the COLOR FRAMING switch is set to OFF → S

OPERATION



1 Make the preparations on the player.
1. Turn the power on and insert the recorded video cassette.
2. Set the AUDIO MONITOR switch to MIX in most cases.
3. Set the MODE SELECT switch to NORMAL.
(When a time base corrector is used, set the switch to TBC.)
4. Set the MEMORY switch to OFF.
5. Play the tape, and adjust the TRACKING control and SKEW control, if necessary, so that the best possible playback picture is obtained.

2 Make the preparations on the recorder.
1. Turn the power on and insert a video cassette.
● Check that the red button on the bottom of the cassette is in place. If it is not, the E-to-E mode picture will be cut off.
2. Set the AUDIO MONITOR switch to MIX in most cases.
3. Set the MODE SELECT switch to EDIT.
4. Set the INPUT SELECT switch to DUB.
(If the player is connected to the VIDEO IN connector, set the INPUT SELECT switch to LINE.)
5. Set the MEMORY switch to OFF.
6. Play back the tape on the player, and adjust the video recording level if the video signal is to be edited, or the audio recording level if the audio signal is to be edited.



5 Search for the edit-in point on the recorder and memory it.

Search for the edit-in and edit-out* points on the player and memory them. 4

Press the PREVIEW button to rehearse the editing. 6
If necessary, modify the editing points with the TRIM buttons.

3 Decide the edit mode, assembly editing or insert editing.

7 Press the AUTO EDIT button, and the editing is performed automatically.

*The edit-out point can be decided on the recorder instead of on the player.

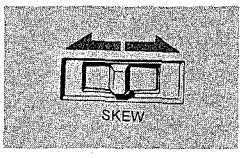
To check the edited result, press the REVIEW button.

● For details on the procedure of editing, refer to the instruction manual furnished with the RM-440.

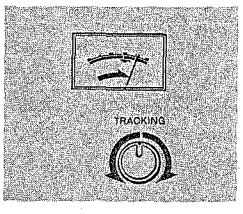
ADJUSTMENT OF THE PLAYBACK PICTURE

Normal picture

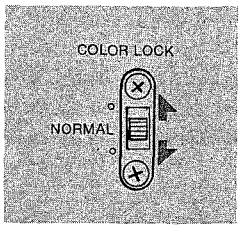
If a hookng distortion appears in the upper part of the picture :
Move the SKEW control slowly to the right or left until a normal picture is obtained.
● The SKEW control automatically returns to its center position when the unit enters the record or edit mode. In the record and edit modes, this control must not be adjusted.



If snow or streaks may appear when a tape recorded on another machine is played back :
Turn the TRACKING control slowly clockwise or counterclockwise so that the pointer of the TRACKING meter swings as far to the right as possible.
● When the playback of this particular tape is finished, be sure to return the control to its center FIXED position.



(Only for the VO-5850P)
If the picture loses its color or does not maintain a correct hue :
Reset the COLOR LOCK switch on the rear to either upper or lower position.
● When the playback of this particular tape finished, be sure to return the COLOR LOCK switch to the NORMAL position.

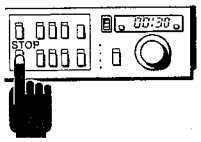


VIDEO HEAD CLEANING

—If the picture completely disappears at times or if only snow or streaks may appear on the monitor screen,

The video head may be dirty. Clean the head using the KC-1C Cleaning Cassette (optional).

1. Eject the inserted cassette.
2. Insert the cleaning cassette.
3. Press the RESET button so that the time counter indicates "00 00".
4. Press the PLAY and REC buttons simultaneously. The tape will start running.
5. When the time counter indicates "00 30", press the STOP button.
6. Eject the cleaning cassette.



- Do not run a cleaning cassette for more than 30 seconds at a time, nor use it unless the picture symptoms clearly indicate the need for head cleaning. Excessive use of the cleaning cassette will shorten the life of the head.
- Do not rewind the cleaning cassette every time it is used. Run the tape to its end, then rewind it.
- You can run through a cleaning cassette several times, although it does gradually become less effective.
- If no video signal is connected to the VO-5850P/VO-5850S, the display of the time indicator does not change. In such a case count 30 seconds by using your watch.

AUTO SEARCH CONTROL

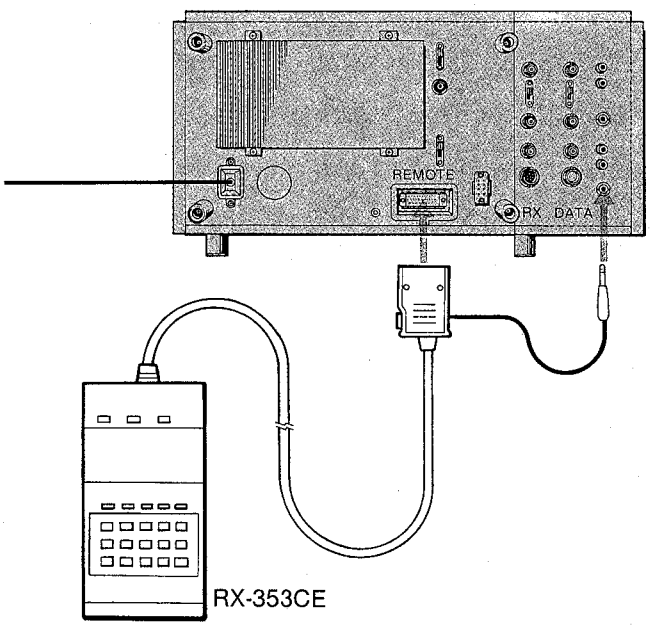
With the RX-353CE or RX-303CE Auto Search Control (optional), any point on the tape designated in minutes and seconds can be automatically located and played back. In addition, up to 8 segments can be automatically played back in any desired order. Refer to the Auto Search Control's instruction manual for details.

Notes

- Setting and controls on the recorder have priority over those on the Auto Search Control.
- Be sure to turn the power of the recorder off when connecting and disconnecting the 20-pin connector.
- Set the MEMORY switch on the VO-5850P/VO-5850S to OFF when the Auto Search Control is used.

USING THE RX-353CE

The RX-353CE devides the recorded material into segments. A segment has its own number and the beginning and end position on the tape, and we call them the segment data. The segment data can be recorded at the beginning of the audio channel 1 on the tape, and be kept even if the RX-353CE is disconnected or the power of the recorder is turned off. So the data can be used repeatedly.

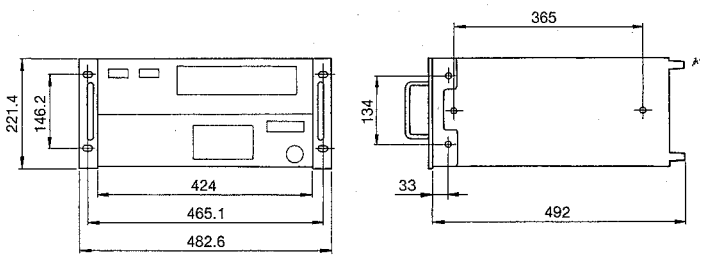


Notes

- The data recording level is automatically adjusted. So the level adjustment is not necessary.
- Do not run the tape with the function buttons or search dial on the VO-5850P/VO-5850S when the RX-353CE is used. This is because the indication on the tape position indicator of the RX-353CE and the actual tape position do not correspond correctly when the VO-5850P/VO-5850S is used to run the tape.

RACK MOUNTING

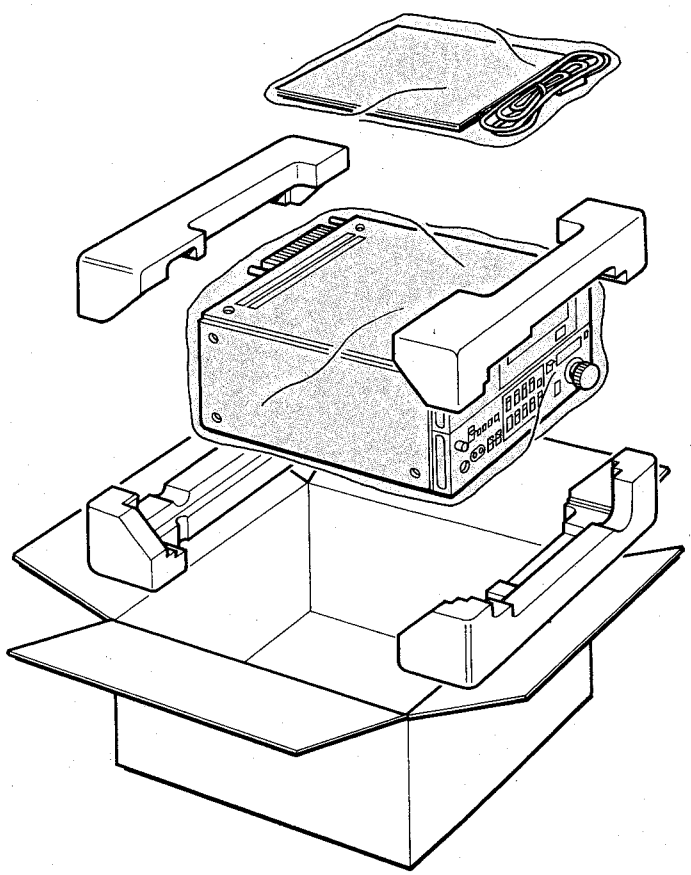
The VO-5850P/VO-5850S is designed to be mounted in a 19-inch EIA standard rack. It's also possible to mount the VO-5850P/VO-5850S in other racks which can answer a variety of needs. Please contact your Sony dealer when you want to mount the VO-5850P/VO-5850S in the rack.



Unit : mm

REPACKING FOR SHIPMENT

The repacking procedure is subject to change.
Refer to the illustration on the original carton for later packing instructions.



SPECIFICATIONS

System

Video recording	Rotary two-head helical scan system Luminance : fm recording Color signal : converted subcarrier direct recording
Video signal system	VO-5850P : CCIR standards, PAL color VO-5850S : CCIR standards, SECAM color

Video

Input

VIDEO IN	BNC type, ×2 with 75 ohm termination switch and loop-through output 1.0 V (p-p) $^{+1.0}_{-0.5}$ V (p-p), 75 ohms, unbalanced, sync negative
DUB IN	7 pin, ×1
TV	8 pin, ×1

Output

VIDEO OUT	BNC type, ×2 1.0 V (p-p) ±0.2 V (p-p), 75 ohms, unbalanced, sync negative
DUB OUT	7 pin, ×1
TV	8 pin, ×1
Horizontal resolution	Monochrome mode : 340 lines Color mode : 250 lines
Signal-to-noise ratio	Monochrome mode : more than 48 dB Color mode : more than 46 dB

Subcarrier

SC IN (only for the	VO-5850P) BNC type, ×1 2 V (0.5 – 3 V) (p-p), 75 ohms, unbalanced, sync negative

Sync

EXT SYNC IN	BNC type, ×1 4 V (2 – 5 V) (p-p), 75 ohms, unbalanced, sync negative
Recording level	Automatic and manual

Audio

Input

LINE CH-1, CH-2 IN	Phono jack, × 1 in each −10 dB, 47 k ohms
MIC CH-1, CH-2	Phone jack, × 1 in each −60 dB, for 600 ohm microphones
TV	8 pin, ×1

Output

LINE CH-1, CH-2 OUT	Phono jack, × 1 in each −5 dB (with 47 k ohm load)
AUDIO MONITOR	Minijack, ×1 −5 dB (with 47 k ohm load)
HEADPHONES	Stereo phone jack, ×1 for 8 ohm headphones Level : adjustable (−24 dB to −46 dB)
TV	8 pin, ×1
Signal-to-noise ratio	Better than 48 dB (at 3% distortion) Both channels 1 and 2
Frequency response	50 – 15,000 Hz (channels 1 and 2)
Recording level adjustment	Manual, with audio limiter

Edit

Assemble	Video and audio channel 1 and audio channel 2 (simultaneously)
Insert	Video, audio channel 1 and/or audio channel 2 independently (selectable)
Preroll	Possible
Automatic editing	Possible with the RM-440 Automatic Editing Control (optional) Accuracy : ±2 frames (This value does not apply if the F FWD or REW button is used during editing.)

Special functions

Pause	A still picture is obtained, with long pause function
Search	Possible (still, and 1/30 to 5 times of normal speed in forward and reverse directions) Picture search is possible with the RM-440 when the KCS type tape is used.
Tracking control	Possible
Skew control	Possible
Sync system	Internal and external
Vertical-interval switcher	Internal
Dropout compensator	Internal

Tape transport

Tape speed	9.53 cm/sec (3 3/4 ips)
Recording or playback time	60 min (with KCA-60)
Fast forward and rewind time	within 4 min (with KCA-60)
Wow and flutter	±0.25% (DIN)
Tape compatibility	U-matic video cassette tape
Usable tape	KCA, KCS type tape

General

Power requirements	110 – 240 V ac ±10%, 50/60 Hz ±10%
Power consumption	75 W with RM-440
Operating position	Horizontal
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	Approx. 446 × 237 × 518 mm (w/h/d) (17 5/8 × 9 3/8 × 20 1/2 inches) including projecting parts and controls
Weight	Approx. 25 kg (55 lb)
Accessory supplied	AC power cord 1

While the information given Is ture at the time of printing, small production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in the specifications. We would ask you to check with your appointed Sony dealer if clarification on any point is required.

NOTE :
This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

RECOMMENDED VIDEO EQUIPMENTS AND ACCESSORIES

Editing Control Unit RM-440
Color Video Monitor Sony CVM and PVM series
Color Video Camera Sony DXC series
Auto Search Control RX-353CE, RX-303CE
Remote Control Unit RM-500, RM-580
Cleaning Cassette KC-1C
Remote Control Cable RCC-5F
Dubbing Cable VDC-5 (5 m)
Monitor Connecting Cable VMC-3P (3 m), VMC-5P (5 m), VMC-10P (10 m)
Video Responder System VRC-100, VRS-110, VRD-100, VRP-100
Multi Remote Control Unit RM-555
Video and Audio Distributor DA-500
Video and Audio Switcher VCS-500
VTR Selector RM-V5

TROUBLE CHECKS

If the AUTO OFF indicator lights and the function buttons do not function

The moisture has condensed inside the recorder.
Keep the power on and wait until the indicator goes off to indicate that the moisture has evaporated.

- Do not try to insert a cassette while the AUTO OFF indicator is lit. Otherwise the protection circuit may be activated and the recorder will not operate even if the indicator goes off. In such a case, turn the power off, then turn it on again.

Moisture condensation

When the unit is moved directly from a cold place to a warm place, or when the unit is operated in a place with high humidity, moisture may condense inside the unit. If the tape runs in this condition, it may adhere to the head drum or the tape guide and be damaged. To prevent this possibility, the unit is equipped with a moisture detector. The AUTO OFF lamp lights to indicate that moisture has been detected inside the unit. When this lamp is lit, the cassette is automatically ejected, if it is inserted, and the unit does not function, even if any of the function button is pressed.

- When the unit is first moved to place in which it is subject to condensation, we recommend you to wait for about ten minutes and to turn the power on so that the moisture detector will operate.

If the tape suddenly stops and the function buttons do not function ⇨ Eject the cassette, and take up the leader tape manually (see page 5). Reinsert the cassette and operate the recorder again.

If the STAND BY indicator remains lit and the recorder does not operate even though the lamp of the function button pressed is lit ⇨ If the recorder does not function, turn the recorder off and contact your nearest Sony service facility.

If the cassette cannot be ejected ⇨ Turn the recorder off and contact your nearest Sony service facility.

Should you have a problem other than those mentioned as above, check the following three items then the list of problems and corrective actions. If the difficulty persists, contact the dealer from whom this unit was purchased, or your local authorized Sony service facility.

1. **Check that the ac power cord is firmly connected to the AC IN connector and to a working ac outlet.**
2. **Check that the POWER switch is set to ON.**
3. **Check the connections: for recording and playback, see pages 14 and 15; for editing, see page 22.**

Problem	Corrective action
A cassette cannot be inserted.	● Is the cassette correctly inserted? (See page 5.) ● Check whether another cassette has already been inserted.
Recording cannot be done.	● Check that the REC lamp is lit. ● Check that the red button on the bottom of the cassette is in place. (See page 5.) ● Set the INPUT SELECT switch correctly. ● Adjust the video and audio recording level. (See page 16.) ● Prepare the program to be recorded. (See page 16.)
The desired edit mode cannot be set.	● Check that the appropriate edit mode indicator is lit. If the different indicator is lit, press the corresponding button to turn the indicator off, then press the appropriate button.
The playback picture Snow or streaks appears.	● Adjust the TRACKING control. (See page 24.) ● Clean the video head. (See page 25.)
The picture has no color.	● Set the COLOR LOCK switch to either upper or lower position (only for the VO-5850P). ● Set the MONITOR TV switch to the COLOR position.
The picture does not maintain the correct hue	● Set the COLOR LOCK switch to either upper or lower position (only for the VO-5850P).
Hooking distortion appears.	● Adjust the SKEW control. (See page 24.)
Sound cannot be heard from a monitor or headphones.	● Set the AUDIO MONITOR switch to the appropriate position.